ABSTRACT

A system for use with a reduced size catadioptric objective is disclosed. The system including the reduced size objective includes various subsystems to allow enhanced imaging, the subsystems including illumination, imaging, autofocus, positioning, sensor, data acquisition, and data analysis. The objective may be employed with light energy having a wavelength in the range of approximately 190 nanometers through the infrared light range, and elements of the objective are less than 100 mm in diameter. The objective comprises a focusing lens group and at least one field lens oriented to receive focused light energy from the focusing lens group and provide intermediate light energy. The objective also includes a Mangin mirror arrangement. The design imparts controlled light energy with a numerical aperture in excess of 0.65 and up to approximately 0.90 to a specimen for imaging purposes, and the design may be employed in various environments.